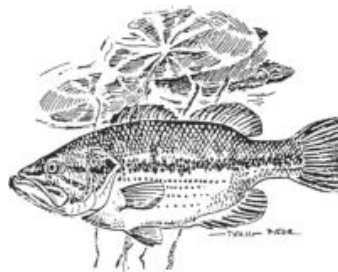


STARVE HOLLOW LAKE

2004 Fish Management Report

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INTRODUCTION

Starve Hollow Lake is a 145-acre impoundment owned by the Indiana Department of Natural Resources (IDNR), Division of Forestry. It is located in Jackson County about 7 miles south of Brownstown. A beach, bathhouse, class A and B camping, picnic areas, playground, self-guiding nature trail and hiking trail, seasonal nature center, rental rowboats and canoes, mooring posts, fish cleaning station, several handicap-accessible fishing piers, and three boat ramps accommodate the public. IDNR launching permits are required on boats using the lake. Only electric motors are allowed. Maps of the property are available from Starve Hollow State Recreation Area, 4345 South County Road 275 West, Vallonia, Indiana 47281.

Construction of the lake by the W.P.A. was completed in 1938. The primary purpose for building the lake was to supply water to a tree nursery and to a state fish hatchery. By the 1950's, the lake had also become a popular camping and fishing site.

The lake was drained in 1986 by the Division of Forestry to enlarge the principal spillway. The Division of Fish and Wildlife (DFW) conducted a fisheries renovation in the fall of 1987 to eliminate common carp and gizzard shad from the lake and its watershed. Following the renovation, game fish were restocked by the DFW (Table 1). Largemouth bass are protected with a 14-inch minimum size limit. A regular supplemental stocking program for channel catfish began in 1988.

Table 1. DFW fish-stocking records for Starve Hollow Lake from 1987 through 2004.

<u>Species</u>	<u>Number</u>	<u>Length Range (inches)</u>	<u>Stocking Date</u>
Largemouth bass	72	9.1 - 15.5	November 1987
Largemouth bass	14,500	3.0 - 4.0	November 1987
Bluegill	35,650	0.9 - 2.6	November 1987
Redear sunfish	36,250	1.4 - 2.0	November 1987
Channel catfish	3,700	4.2 - 12.6	November 1987
Channel catfish	3,625	4.0 - 11.0	October 1988
Black crappie	1,785	2.3 - 3.7	September 1989
Black crappie	34	8.0 - 13.0	March 1990
Channel catfish	3,625	3.6 - 12.4	October 1991
Channel catfish	2,326	3.2 - 12.8	October 1994
Black crappie	1,621	3.3 - 6.8	Sept/Oct 1996
Channel catfish	2,323	4.4 - 12.4	October 1996
Channel catfish	2,326	3.6 - 13.8	October 1998
Redear sunfish	14,744	0.6 - 2.0	November 1999
Channel catfish	2,320	5.4 - 12.6	October 2002
Channel catfish	2,320	4.6 - 12.2	October 2004

Likely due to illegal stockings by anglers, gizzard shad were found in Starve Hollow Lake in 1998, only 11 years after the renovation project in 1987. This survey was conducted under DFW Work Plan 202478 to evaluate the largemouth bass and bluegill fishery as well as the gizzard shad population. Since the timing of this survey is more comparable with the June 1996 survey than the September 1999 survey, 2004 results will be compared to 1996 results.

METHODS

A survey of largemouth bass, bluegill, and gizzard shad was conducted June 3 and 9, 2004. Fish were collected by DC electrofishing the shoreline over two nights with two dippers for a total of 1.5 hours. The lake's shoreline was divided into six 15-minute electrofishing stations. The odd-numbered stations were sampled the first night and the even-numbered stations were sampled the second night. All fish collected were measured to the nearest 0.1 inch in total length; fish were not weighed. Average weights for fish by half-inch groups for Fish Management District 8 were used to estimate the weight of the fish sample. Fish scale samples were taken from largemouth bass, bluegill, and gizzard shad for age and growth analysis. Electrofishing catch rates include all age groups of fish.

RESULTS

A total of 1,637 fish was collected during this survey. Brook silverside *Labidesthes sicculus*, which had not been collected before, were observed during the survey. Using district average weights, the total weight of the fish sample was estimated at 327 pounds.

Bluegill ranked first by number (65%) and third by weight (23%) in the survey sample. They ranged in size from 1.6 to 7.9 inches, averaging 4.5 inches. Ten percent of the bluegill in this sample were six inches or longer.

Although growth for age 3 and age 4 bluegill has declined since 1996 (Lehman 1997), growth for all bluegill remains above average for southeastern Indiana (Figure 1). Back-calculated lengths indicate that some bluegill are reaching 6 inches during their fourth year of growth.

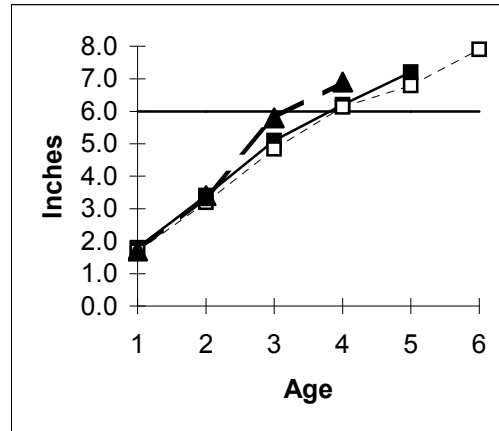


Figure 1. Starve Hollow bluegill growth from 2004 survey (solid line) compared to 1996 survey (dashed line) and to average bluegill growth observed in Fish Management District 8 impoundments (dotted line).

Recommended bluegill proportional Stock Density (PSD) values for a balanced fishery range from 20 to 60 (Anderson and Neumann 1996). The low PSD value of 10 in Starve Hollow Lake indicates that few quality-size bluegill longer than 6 inches are present compared to the number of bluegill 3 inches and longer. The PSD in 1996 was 23.

The Bluegill Fishing Potential (BFP) Index is an objective rating system that was developed in Indiana to assess bluegill fishing in lakes and ponds (Ball and Tousignant 1996). Out of a possible 40 points in the index, the current bluegill fishery scored 17 points, which falls in the fair category (Table 2). A low PSD and the absence of bluegill over 8 inches are the primary reasons that the BFP Index is not higher in Starve Hollow Lake.

Table 2. Range of scores for each category in the Bluegill Fishing Potential Index.

<u>POOR</u>	<u>MARGINAL</u>	<u>FAIR</u>	<u>GOOD</u>	<u>EXCELLENT</u>
0 - 7.0	7.1 – 12.9	13.0 - 18.9	19.0 - 25.9	26.0 - 40.0

Gizzard shad ranked second by number (28%) and first by weight (39%) in this survey. They ranged in size from 5.4 to 14.7 inches, averaging 9.1 inches. Compared to their average rate of growth in District 8, shad are growing rapidly in Starve Hollow Lake (Figure 2).

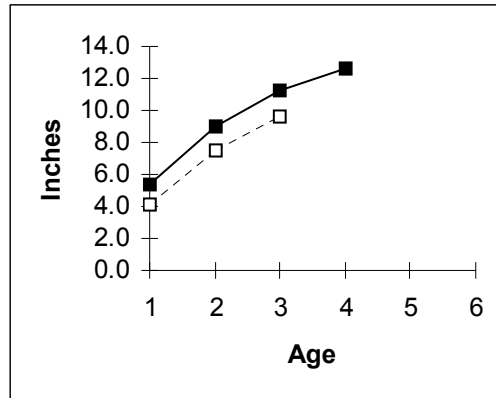


Figure 2. Starve Hollow gizzard shad growth from 2004 survey (solid line) compared to average gizzard shad growth observed in Fish Management District 8 impoundments (dotted line).

Largemouth bass ranked third by number (8%) and second by weight (38%) in this survey. They ranged in size from 1.1 to 22.3 inches, averaging 10.4 inches. Of 131 bass collected, 40 (31%) were of legal size.

Except for age 1 fish, bass growth has improved since 1996 (Lehman 1997). Starve Hollow bass are growing faster than the average bass in southeastern Indiana (Figure 3). In fact, Starve Hollow bass are reaching 14 inches during their fifth year of growth, which is one year above average.

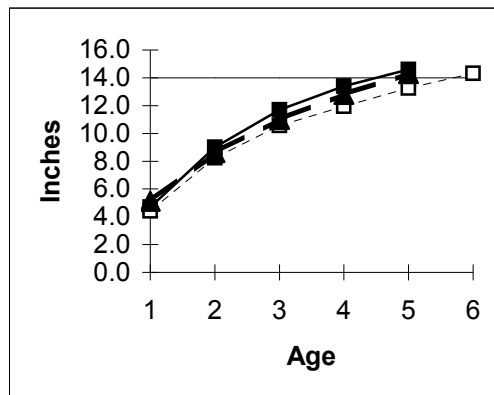


Figure 3. Starve Hollow largemouth bass growth from 2004 survey (solid line) compared to 1996 survey (dashed line) and to average largemouth bass growth observed in Fish Management District 8 impoundments (dotted line).

Recommended largemouth bass PSD values for a balanced fishery range from 40 to 70 (Anderson and Neumann 1996). The PSD of 62 observed for Starve Hollow bass in this survey has increased slightly from 59 observed in 1996. Good growth and a large number of bass over

12 inches are the primary factors contributing to this high PSD.

SUMMARY AND RECOMMENDATIONS

Starve Hollow Lake continues to provide fishing opportunities for largemouth bass and bluegill. The bass fishery has improved since the last survey in 1999 and has reached levels comparable to 1996 (before the fish kill of July 1999 and before gizzard shad were established). The bluegill fishery appears to be declining. This may be correlated with the appearance and establishment of gizzard shad.

Gizzard shad have contaminated the ponds at Driftwood State Fish Hatchery, which presents several problems for hatchery personnel and Indiana anglers: 1) competition from shad interferes with game fish production; 2) extra work is required during pond harvest to ensure that all gizzard shad are removed from those fish raised for stocking in Indiana's public waters; and 3) there is a risk of accidentally stocking shad into Indiana waters where they are not desired.

Starve Hollow Lake should be drained and renovated to correct the shad problem in the lake and the problems associated with shad contamination of Driftwood's production ponds under the following circumstances: 1) if and when the lake is dredged by the Division of Forestry to address the loss of volume due to sedimentation; 2) if and when the lake is drained by the Division of Forestry to repair the dam; and 3) if and when the public wants to renovate the fishery in the lake without dredging it. Largemouth bass, bluegill, redear sunfish, black crappie, and channel catfish would be restocked by the DFW following the fisheries renovation.

Starve Hollow Lake is scheduled to be surveyed from 2005 through 2009 under DFW Work Plan 204034 which is titled, "Gizzard shad experimental management strategies." The work plan objectives are:

1. Report on how the illegal introductions of gizzard shad have negatively affected sport fish populations and reduced fishing opportunities.
2. Determine the most effective way(s) to control excessive gizzard shad populations.
3. Determine how sport fish populations respond to various gizzard shad management techniques.

Starve Hollow will be surveyed from early to mid-June each year. Only largemouth bass, bluegill, and gizzard shad will be collected. The management activity being tested at Starve Hollow is an annual winter drawdown with a goal of a 50% reduction in volume during January and February.

A creel survey in 1990 indicated that 6% of the anglers were fishing for channel catfish. Approximately 1,300 channel catfish were harvested (Tousignant 1991). In light of this interest

and harvest, it is recommended that channel catfish continue to be stocked every two years to maintain catfishing opportunities. Channel catfish should average at least 8 inches in length when stocked to reduce predation by bass. The next catfish stocking is scheduled for the fall of 2006.

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